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THE TALITSA INTRUSIVE MASSIF, MOLYBDENUM-WOLFRAM DEPOSITS

A. I. Aleksandrov

Up to the present, seven molybdenum-wolfram deposits are known to have been discovered in the Talitsa Massif, but geological prospecting is being carried out in only three of them. A brief description of the deposits follows:

Verkhne Slyudyanka Wolfram Deposit

This deposit is located in the Ust-Kalmanka Rayon of Altay Kray. It was discovered by the author in 1941. The main mass of the ore body consists of coarse-grained, often drusy quartz, whose color varies from gray to white. Besides quartz, wolframite is distributed in pockets of ore; scheelite is found together with wolframite in appreciable amounts; fluorite; pyrite, and chalcopyrite are also present; and in the oxidized zone there is limonite, malachite, azurite, and tungstite.

Although wolframite often coincides with the casings of the veins, giving the latter a belt-like structure, it is also often disseminated in the veins without any regularity. Fine-grained wolframite prevails in the ores.

Scheelite is always combined with wolframite and is very rarely found separately in the veins which have been surveyed. It permeates the grains of wolframite by cleavage, or corrodes them. Scheelite is very often encountered in the ores, although in smaller quantities than wolframite.

The formation of minerals occurred in this order: high-temperature minerals were formed first, namely wolframite, tourmaline, coarse-grained quartz and mica; later, the sulfides and fine-grained quartz, as well as scheelite and fluorite were formed.

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The enclosing rocks, particularly biotitic hornstones, are enriched by tourmaline in the vicinity of the quartizitic veins. Fine micaceous fringes have formed in the casing veins. The quartzitic diorites are greisenized.

Mul'chinskoye Molybdenum-Wolfram Deposit

This deposit is located in the Soloneshnoye rayon of Altay Kray, 25 kilometers southeast of the Verkhne Slyudyanka deposit. It was discovered in August 1942. In the vicinity of the Mul'chinskoye deposit are found the Chernukhinskiy and the Aleksandrovskiy deposits, which may be considered as a single wolframite-molybdenum mining region.

All the deposits of the Mul'chinskoye region are situated within the Talitsa intrusive complex. Part of the deposit consists of granite porphyries, which coincide with the marginal sections of the intrusion. They extend in a strip of varying width, which reaches 2 kilometers along the Mul'chikha River. Aplite-like granites constitute the summit of Malaya Rossypnaya mountain and are found among the granite porphyries. Porphyry-like granites join the water divide of the Mul'chikha and Kuchikha rivers and reach the slopes of Malaya Rossypnaya mountain. Toward the south, on the water divide of the two rivers, they are replaced by consertal biotitic granites. Veiny rocks, aplites, and pegmatites are very rarely found. Some quartzitic feldspathic pegmatites contain some wolframite, whose grains attain a length of 5 cm.

Scheelite is found in large amounts and often is combined with wolframite. In contrast with the Verkhne Slyudyanka deposit, molybdenite is found in considerable quantities among the ores of the Mul'chinskoye deposit. These ores also contain arseno-pyrite, pyrite, chalcopyrite, bismuthine, "eleplektit," muscovite, feldspar, and fluorite. In the zone of oxidation occur powellite, molybdite, limonite, scorodite, bismutite, and wolfram ochers.

The enclosing rocks have changed to greisen. It is interesting that this phenomenon occurs more sharply in that section of the Chernukhinskiy deposit, where the granite porphyries have changed into quartzitic micaceous greisens over a considerable area.

Kazandinskiy Molybdenum-Wolfram Deposit

This deposit is located in the mountainous sector of Altay Kray on the water divide of the Shcheleta River and its first tributary, the Kazanda, and is 30 km south of Soloneshnoye. It was discovered in 1944 in the course of exploratory work conducted by the author. It has been quite thoroughly studied. The deposit has quartizite accumulations with wolframite and molybdenum. Over an 800-m area to the west we determined six quartizitic veins from 6 to 20 cm in width, having a northwest course of 280° and a vertical dip. The widest vein in this course stretches over 200 m. The veins contain pyrite, tourmaline, bismuthine, and molybdenite. To the east, on the water divide of the sources of the Trishkin and Smordinnoye, quartzitic veins are located in the main outcrops. They are up to 10 cm wide and contain tourmaline and wolframite. All the veins are located in aplite-like granites and are coordinated with a system of fissures. Besides these, a series of quartzitic veins, which contain bismuthine and scheelite, occur in hornstones, which are located to the north of the above-mentioned point.

The mineralogical composition of this deposit differs somewhat from that of the preceding deposits. The veins are composed of light gray and white coarse-grained quartz with drusy vacuums and mountain crystal. Mica and feldspars are very rarely found in the quartz. The following minerals are present: huebnerite, molybdenite, scheelite, bismuthine. The molybenite here has a fine

flaky texture, and bismuth occurs in considerable amounts; dark green tourmaline is lacking, and black tourmaline is rarely found. Pyrite occurs in appreciable amounts and chalcopyrite in small amounts. Fluorite has been found in some places.

In oxidized and very porous ores are found the following: limonite, jarosite, bismutite, bismite, gypsum, molybdite, wolframite ochers, and natural sulfur.

The enclosing rocks have changed to greisens and contain molybdenite.

Talitsa Molybdenum-Wolfram Deposit

The Talitsa deposit, discovered by M. A. Luppov in 1941, is located on the right bank of the upper Anuyskaya Talitsa River, 12 km south of the Kazandinskiy deposit. It is a quartzitic accumulation with molybdenite, huebnerite, fluorite, muscovite, and feldspars.

Karakol'skiy Molybdenum Deposit

This deposit is situated on the water divide of the Kyzyl-Kalbala, Uskucha and Malaya Talitsa rivers, 20 km east of the Talitsa deposit. It was discovered by V. A. Kuznetsov in 1941, and in 1942-43 it was studied by the Bashchelakskaya geological survey group of the "Soyuzzolotorazvedka" Trust.

It is located among aplite-like and muscovite granites and has quartzitic veins and dikes of aplites. The veins consist of gray and light gray coarse-grained druse-like quartz, in spots of which are found the following: molybdenite, scheelite, pyrite, chalcopyrite, powellite, limonite, natural sulfur, and fine greenish mica. In 1944, we discovered wolframite in ore slimes, taken from the alluvial deposits of the Terta (Uskucha) River and its tributaries.

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